

## ABSTRACT

Systems for removing arsenic from water by addition of inexpensive and commonly available magnesium oxide, magnesium hydroxide, calcium oxide, or calcium hydroxide to the water. The hydroxide has a strong chemical affinity for arsenic and rapidly adsorbs arsenic, even in the presence of carbonate in the water. Simple and commercially available mechanical systems for removal of magnesium hydroxide particles with adsorbed arsenic from drinking water can be used, including filtration, dissolved air flotation, vortex separation, or centrifugal separation. A system for continuous removal of arsenic from water is provided. Also provided is a system for concentrating arsenic in a water sample to facilitate quantification of arsenic, by means of magnesium or calcium hydroxide adsorption.